# FIRST AID IN THE HOME

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# First Aid in the Home

BY

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Medical Corps, United States Army

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# First Aid in the Home.

## CHAPTER I.

## The Prevention of Sickness and Accident.

**Happiness and Health in the Home.**—The happiness and health of every family depend upon the members working together for the common good. We all know how much a good mother means for happiness. But perhaps we do not always remember how important the mother is so far as the good health of the family is concerned. As a matter of fact, the condition of the home and its care rest on her shoulders. From the children's earliest days until they are big enough to look out for themselves the mother looks after them with her tender care. Love cannot be learned, it is true, but love and knowledge do not always go together. The mother has the good will; she should have the necessary knowledge as well.

**Object of this Booklet.**—The object of this booklet is to teach prevention of disease and injury, when to call the doctor, and the first thing to do when illness threatens or accidents occur in the home. It is hoped that it may prove of value to all the members of many households, but, for the reason stated above, it is intended first of all for mothers.

### Prevention and Cure.

It has been said that "an ounce of prevention is worth a pound of cure." This is more important so far as disease is concerned than in connection with anything else. Thousands of accidents, too, could be prevented yearly in our country if ordinary care were used.

## PREVENTION OF SICKNESS.

For this two things are important: first, we should make our bodies as strong and sound as possible, and, second, we should keep away from contagious disease.

1. **A SOUND BODY.**—A healthy person is much better prepared to escape and to resist disease than a sickly person. Nor is it so difficult to be healthy if one is careful. Good air, good food, good water, good habits, a proper amount of exercise, sufficient rest and sleep, personal cleanliness, and attention to the bowels are necessary.

(a) **Good Air.**—**Good air is required both day and night.** Keep out-of-doors as much as possible. That is where the best air is found. In the house either windows or doors should be partially opened, to allow the good air to enter and the bad air to escape. Don't sit in a draft, but, on the other hand, remember that if a room smells **stuffy** the air is **not** good and that this is **not** healthful.

(b) **Good Food.**—Too little food results in dangerous weakness; too much, in the accumulation of fat. Neither is healthy. The amount of food depends on the person, but also on the character of work and the season. With light work and in hot weather less food is needed. There are various kinds of food. Meat is a good example of one kind. The others are fat, sugar, starch, and mineral matter, such as salt and water. All these form part of and are needed in the human body. That is why a mixed diet is best. Too much fat, starch or sugar usually results in increase of weight, and they should be avoided by persons inclined to grow stout. **The plainer the food the better for the health.** Dishes made of a lot of different things, greasy sauces and rich pastry usually cause bad digestion. Fried food is hard to digest. Most people know what will agree with them and what will not. If they stick to simple food they will live longer and be happier. Whatever the food may be, it should be thoroughly chewed; otherwise work will be put upon the stomach and intestines that they are in no measure fitted or intended to perform. Food should always be protected from flies. These pests often come directly from the privy vault or manure heap to the dinner table, and it has been proved that they may carry the germs of disease. That is why they are called "typhoid flies."

(c) **Good Water.**—Plenty of good water is necessary for good health. Bad water is one of the commonest carriers of disease. If a water is clear and sparkling and looks good, that does not make it good. It may be as dangerous as water which looks dirty and bad. **Don't drink any water unless you know it is good.** Most cities now have good water supplies. Well water is very often contaminated. That is the reason why typhoid fever is so common in the country. City people often contract typhoid fever from the water in the country or at summer resorts. If a well is located near a privy vault, or if it is so constructed that the filth from the surface of the ground can wash into it, the water may be unsafe to drink. **Any water may be purified by boiling it for ten minutes.** It should really boil for this length of time. Ice may be as dangerous as water, and it is much safer, unless you are sure the ice is good, not to put it in the water, but to cool the water by pouring it into a bottle and placing this on the ice. Individual drinking cups are now very generally used, and should always be employed in place of a common drinking cup, from which persons with the foulest diseases may have drunk.

(d) **Good Habits.**—Alcoholic liquors are one of the commonest causes of many serious diseases. It has been proved that even their moderate use is often harmful. The alcohol habit is easily acquired and very difficult to overcome. It is much safer never to learn to drink. Not only the ordinary liquors are dangerous; patent medicines

may be quite as bad. **Some patent medicines which contain morphine and cocaine are even worse than alcohol.** While tobacco serves no good purpose, it is so generally used without apparent injury that it would be foolish to magnify its dangers. Everyone would be better off without tobacco; for some people it is much worse than for others. Growing boys should not smoke cigarettes. Excessive use of tea or coffee is bad, and for some people these drinks are dangerous. If you suffer ill effects from either it will be much better to do without.

(e) **Exercise.**—Moderate exercise is good for every man, woman and child. To keep in good condition some exercise should be taken every day. Do not get overtired. The best exercise is that which is most agreeable. Out-of-door exercise in the pure air is good for everyone.

(f) **Rest and Sleep.**—If one does not have enough rest and sleep he becomes irritable and depressed, and the tired body is much less able to resist disease. That is one of the causes of sickness among soldiers in a hard campaign. As everybody knows, very little children sleep much of the time. The need for sleep gradually diminishes as we grow older. Children require ten to twelve hours, youths eight to ten hours, and adults seven to eight hours.

(g) **Personal Cleanliness.**—The impurities of the body pass out through the skin to a considerable extent, and must be removed if one wishes to remain healthy. This is done by bathing with soap and warm water. Everyone should take at least a weekly bath, and in hot weather, when the skin is more active, daily baths may be necessary. Frequent bathing will also prevent skin diseases and boils. Special attention should be given to the cleanliness of the hands, as dirt from them may be carried to the mouth. The nails should be kept clean, and the hands should always be washed after going to the toilet and before each meal. It is necessary that the underclothing be clean, as well as the skin, and for the same reason. Weekly changes should always be made, with more frequent changes in summer or during employment in hot or dirty work.

(h) **Attention to the Bowels.**—If the waste of the body is not passed regularly from the bowels, weakness and tiredness, low spirits, headache and loss of appetite will result. A daily movement of the bowels is necessary for good health. It is best to have a regular time for this, and not to permit anything to interfere. Bulky food instead of concentrated food will tend to cure habitual constipation. If this is not effective, a doctor should be consulted without delay. Good examples of bulky foods are oatmeal and other cereals, potatoes and other vegetables. Meat is the most concentrated food. Constipation is easily cured in the beginning, but with extreme difficulty later.

**2. CONTAGIOUS DISEASES.**—A contagious disease is one you can catch from another person. These diseases are caused by very small living bodies which are called germs or bacteria. Germs are so small that they can be seen only through a powerful microscope. They grow very rapidly in the human body. The secretions from them, which are quite different in the various diseases, do the harm, often being carried through the body from the point where the germs have lodged. For example, in diphtheria the germs lodge in the throat, but the powerful diphtheria poison is carried to the heart, the kidneys, and the brain, and may injure them so severely that death will follow. Typhoid germs, on the other hand, lodge in the bowels, but typhoid poison is carried through the body in the same way as diphtheria poison.

The dangerous germs by no means have it all their own way, however, when they find a lodging in our bodies. Certain cells, mainly the white blood cells, war against them. When they kill the germs the person is cured. If the germs are victorious, the person will die.

It is very important to remember that all germs come from outside our bodies. They may enter through the nose, through the mouth, through a break in the skin, etc., but always from outside, and one of the ways of preventing disease is to prevent germs from being taken into the body. As has just been stated, the white blood cells war against disease germs. These cells become much weakened, however, if one is not in good condition from any cause, and so another important method of preventing disease is always to keep in the best of health.

From what has been said it is clear that, in order to avoid catching a disease, we must avoid the germs which cause it. **As disease germs are found mainly near the sick person, he is especially dangerous.** A mother is never justified in exposing herself or her children to a contagious disease. It makes no difference if it is a light case; severe illness may be caught from the very mildest cases. Moreover, measles, whooping-cough, scarlet fever, and other children's diseases are now known to **have** very dangerous consequences. Therefore, **keep yourself and your children away from any home, school-house, or place of entertainment where you or they may catch a contagious disease.** If you have a case of such a disease in your own household, place the sick person in a separate room at once and send for the doctor, who will tell you what to do. Other persons must be kept away from the patient during his illness. Trays, dishes, books, etc., should not be removed from the sick-room until they have been properly disinfected under the doctor's direction.

QUARANTINED!

The best way to prevent smallpox is to be vaccinated. If you doubt this, you will be convinced by the results obtained in Cuba, Porto Rico, and the Philippines during and since the

Spanish-American War. Formerly smallpox was found everywhere in these islands. Now, since the people have been vaccinated, it is much rarer than it was before.

Children are vaccinated at from four to six months of age. Re-vaccination should be performed at about the twelfth year. Afterward, if many cases of smallpox exist in a community, it is much safer to be vaccinated again.

## PREVENTION OF ACCIDENTS.

### Commonest Causes of Home Accidents.

1. Falls.—Perhaps the commonest cause of home accidents is falling over something which has been left where it has no business to be. Injuries due to this cause are usually slight, but they are not always so. As severe an injury as fracture of the hip may result. A broken hip means weeks of suffering and perhaps permanent lameness. Pails, brooms and coal-scuttles all have a place of their own, but that is not on the stairs, where everyone is likely to stumble over them. Furniture in the way may be equally dangerous. Very slippery floors with loose rugs are nothing else than man traps. Water spilled on the floor causes many bad falls. Badly placed gas and lamp brackets are responsible for bruises and cuts of the head. The danger from all these things is increased by poor light. All stairs and hallways should be well lighted.

Boards carelessly thrown aside with the nails sticking upward may cause dangerous wounds. Tacks and broken glass should always be carefully swept up. When opening bottles or cans, watch what you are doing. Very severe cuts are sometimes due to broken bottles. The ragged edge of a tin can may cause a painful wound which will be slow to heal.

Guards outside the windows of tenements are now considered necessary. They should be found in all high buildings which are used as dwellings. Such guards save the lives of many children. For babies a gate should be provided at the head of stairways, so as to prevent their rolling down the stairs.

So many injuries, especially injuries of the eyes in children, often with resulting blindness, have been caused by certain common playthings, that a warning should be issued against them. They are: scissors, knives, forks, pencils, pens, pins, hatpins and hairpins, bean-shooters, putty-blowers, button-hooks, umbrellas, sharp sticks, tin swords, washing-soda and pepper.

2. FIRE.—Among the most common home injuries are those due to fire or boiling water. Children should not be allowed to play with matches, to carry lighted lamps, or to take pots or pans containing boiling water from the stove. Flannelet is dangerous for night dresses unless it has been fireproofed, as its soft fuzz catches fire very easily. Cleaning gloves with gasoline in the presence of a light has caused many explosions and fires. Clothing hanging before a fire may catch fire as soon as it gets dry. Putting lighted lamps under shelves has resulted in the loss of many homes.

In case a fire starts in a room, close all doors and windows to prevent a draft. Give the alarm promptly. A few pails of water thrown on at first may do more good than thousands of gallons later.

3. ACCIDENTAL POISONING is not rare in the homes of the United States. To prevent it never put poison in a bottle which is not properly marked. **Always nick the cork of a poison bottle. Keep poisons or powerful drugs under lock and key. Never give anyone medicine without first reading the label on the bottle or box.**

## WHEN TO CALL THE DOCTOR.

In China, it is said, the doctor is paid only when his patients are well. In Panama the Canal was made possible only by the American doctors' preventing disease, and not by their curing it. In the United States it is becoming quite common for people to visit their family physician from time to time for examination and advice while they are feeling well. If they do not go themselves, much more often their children are sent. This is a very wise precaution, for often something slightly wrong may easily be corrected which, if allowed to run on, might be beyond human power to cure.

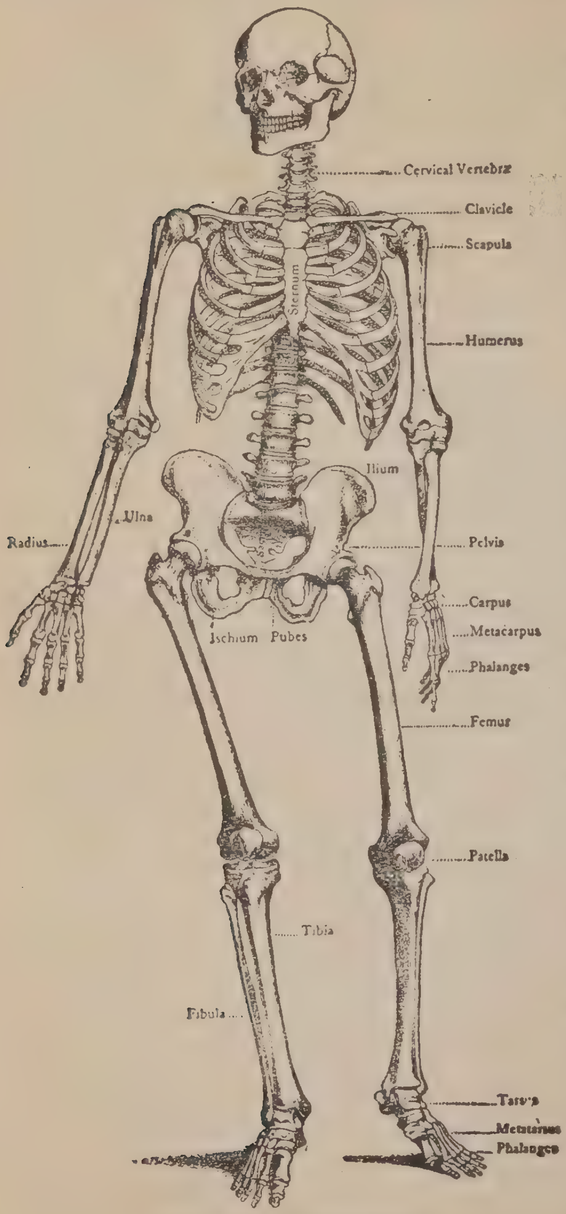
Exact rules prescribing just when to call a doctor in illness or injury cannot be made to cover all cases, but some help may perhaps be given. Very rarely is any saving made by not taking the safer course and consulting a physician in case of doubt. It goes without saying that in any serious illness or injury it is a great injustice to yourself, or to anyone for whom you are responsible, not to see a doctor at once.

If an illness comes on suddenly with high fever, considerable prostration, and headache, a doctor is needed. He is also needed in case of severe headache or pain in the abdomen, especially if these are present after an injury. All injuries of the head and abdomen have very serious possibilities. Croup is so terrifying that the doctor is usually summoned at once by the frightened mother. **Severe sore throat may be diphtheria, and you need the doctor at once.** An eruption with fever often means a contagious disease. Some diseases which come on slowly should not be neglected. Mouth breathing means adenoids, and causes much unnecessary trouble if a child is not put into the hands of a physician. Loss of considerable weight means something wrong. Persistent coughing is a danger signal. Any deformity should be shown to a doctor. Deafness may often be improved or cured if given early attention. Running from the ear is a bad business and should be attended to.

# CHAPTER II.

## How Our Bodies are Made and How Their Work is Carried On.

Anyone who wishes to learn first aid must know how the human body is made and how its work is carried on.



HUMAN SKELETON.

**The Skeleton.**—The framework on which the body is built is made up of about two hundred bones which fit together into the skeleton. This is like the steel frame of a building, and supports all the other parts.

The bones, which differ very greatly in shape according to their purpose, form, with certain softer parts, the following organs:

**The Head,** which consists of (a) a bone case to protect the brain, and (b) the face, including the eyes, ears, nose and mouth.

**The Trunk,** which is divided in two by a big muscle, the diaphragm. The upper part is the chest, which holds the gullet, lungs, heart, and large blood vessels. The lower part of the trunk is called the abdomen, and here are found the stomach, intestines, liver, kidneys, bladder and other important organs. At the back of the trunk is the strong spinal column, enclosing the spinal cord. The twelve ribs form the walls of the chest, which is closed in at the front by the breast bones. Below is the pelvis, a wide bony basin closed in at the back by the lower end of the spinal column, and spread out more widely at the front by the haunch bones.

**The Upper and Lower Limbs.**—The bones of the arm are the shoulder blade at the back of the shoulder, the collar-bone, one long bone above the elbow and two between it and the wrist. The hand has eight bones in the wrist, five in the hand itself, and fourteen in the fingers and thumb. The leg bones are much the same. There is a long bone above the knee, with two below, but there is also a knee-cap, in which regard the leg is different from the arm. The bones of the foot are practically the same as those of the hand; the ankle, which differs most, corresponding to the wrist.

**The Joints.**—As everybody knows, the bones are connected at the joints. At these points each bone is covered with a smooth substance, the cartilage or gristle, which is so smooth that the joints work without friction. This is helped by a small quantity of liquid in each joint. All joints are sealed, and the bones are prevented from separating at the joints by a capsule and by strong fibrous bands called ligaments.

**Muscles.**—The muscles, by pulling on the bones, cause the movements at the joints. The muscles, which are the flesh or meat, make up two-fifths of the weight of the body. Some of the muscles are attached to the bones directly, and others by tendons or sinews. Those in the wrist are easily seen.

**Circulatory Apparatus.**—This is made up of the heart and a series of closed tubes, or blood vessels, which go all over the body. The heart is a hollow muscle about the size of a man's fist. It is located in the chest between the lungs. The heart is a pump, and it pumps the blood to all parts of the body by first squeezing together and then expanding. This is done seventy-two times a minute in adults. The heart works faster in children. However, the heart is not a single but a double pump. The left side sends the blood all over the body and the right side sends it through the lungs alone. When the blood leaves the heart it enters certain blood vessels, which are called arteries. These carry the pure bright-red blood which the heart has just received from the lungs into smaller tubes, called capillaries, from a Latin word meaning a hair. Finally the veins, which have very thin walls as compared with the arteries, carry the impure blood back to the right side of the heart, whence it is sent to the lungs to be purified and returned to the left side of the heart, again to be pumped all over the body.

The blood circulates in this way as long as a person lives. It carries food through the capillaries to the most remote parts of the body, and in returning to the heart it carries waste material. The blood has, however, one other very important property which you must understand clearly. This is its ability to clot. You have perhaps noticed, in a small cut, that after a moment's exposure to the air the blood ceases to flow and becomes solid. That is how bleeding is stopped. In order to clot, the blood must be at comparative rest. Free exposure to the air helps. A substance like gauze, which has many surfaces on which clots may form, helps prompt clotting of blood.

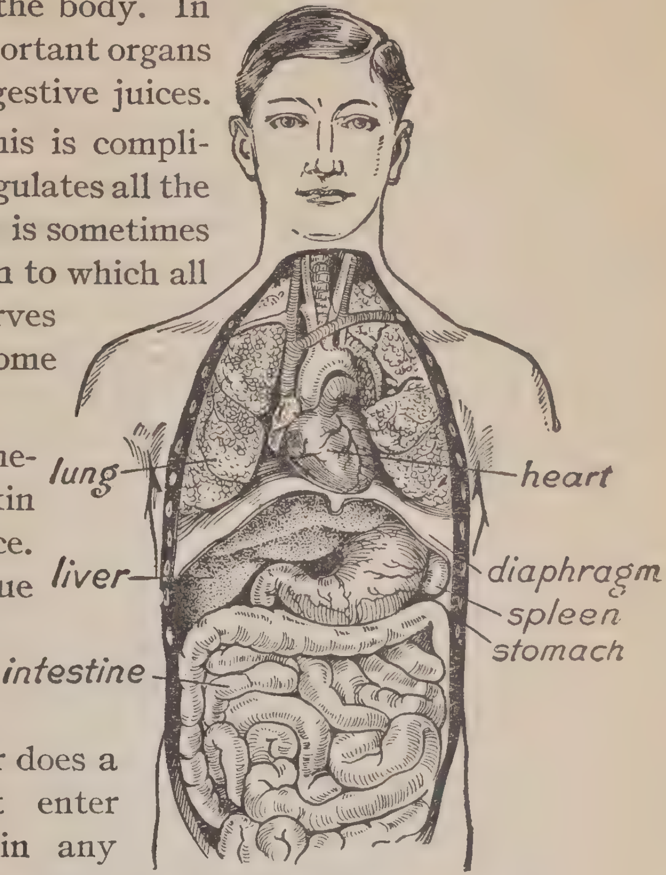
**Breathing Apparatus.**—This is made up of the nose and mouth, the windpipe, and the lungs. All except the last act merely as a passageway for the pure air going to the lungs and the impure air coming from them. The tube to the stomach, which is called the gullet, is back of the windpipe, so that food and water pass over the upper end of the latter. They are prevented from entering by a muscular curtain which covers the upper end of the windpipe when one swallows. If it fails to do this, one chokes, as when one swallows the wrong way.

The lungs, which occupy a great part of the chest, are like bunches of grapes. They are made up of a number of different compartments. In the walls of these compartments are fine blood vessels, and it is in these that the blood meets the pure air breathed in and is purified. At the same time the impurities from the blood pass into the compartments of the lungs and are breathed out through the mouth and nose.

**Digestive Apparatus.**—The food enters the mouth, where part of the digestion is carried on; then it goes to the stomach through the gullet, and thence to the small and large intestines, the waste finally being expelled from the body. In the abdomen are several important organs which supply the various digestive juices.

**Nervous Apparatus.**—This is complicated and important. It regulates all the other apparatus. The brain is sometimes described as a central station to which all messages are sent by the nerves and from which all orders come over other nerves.

**The Skin.**—We are sometimes inclined to regard the skin as not of much importance. This is by no means the true state of affairs, however. The skin, though it is not very thick, affords the body as much protection as armor does a battleship. Germs cannot enter through the unbroken skin any more than cannon-shot can enter a battleship as long as its armor is sound.



ORGANS OF CHEST AND ABDOMEN.

**The Eye,** the organ of sight, is located in a deep cavity of the face, where it is well protected from injury. Any injury in which the eye is actually pierced is very serious. When we say that something is in the eye, we mean that something is caught on the eyeball or between the eyeball and the upper or lower eyelid. This surface is very sensitive, and this is the reason for the considerable pain and distress produced.

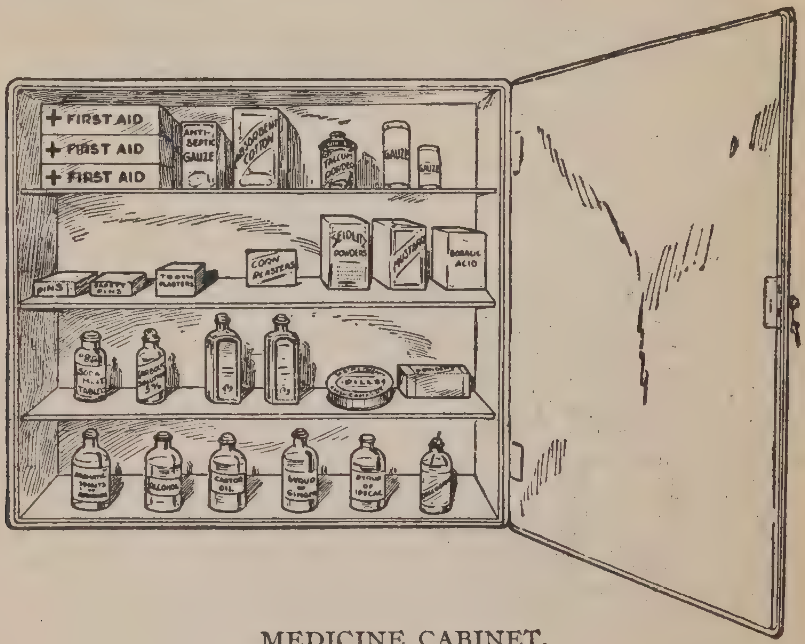
**The Ear.**—The ear, that is, the important parts of the ear, are even better protected from injury than the eye. There is no excuse for putting pointed objects in the ear, for they are liable to produce permanent and serious injury.

# CHAPTER III.

## First Aid in the Home.

### FIRST AID MATERIALS.

In every home a few first aid materials should be found. It is best that they be placed in a cabinet, as otherwise they will be lost and so will not be available in time of need. In this cabinet, too, should be placed any medicine prescribed by the family physician. After such medicines have served their purpose, however, the only place for them is the trash pile. Intended only for a particular case of illness, they may be dangerous for anything else.



MEDICINE CABINET.

Medicine cabinets may of course be purchased, and there are a few good ones on the market. Some are dangerous, as they contain powerful drugs which should be used only under a doctor's direction.

The following drugs and appliances are suggested for the home medicine cabinet. In the quantities indicated they will fit nicely into a box measuring 11 x 10 x 4½ inches on the inside.

Alcohol, two ounces.
Aromatic Spirits of Ammonia (rubber cork), two ounces.
Castor Oil, two ounces, two bottles.
Seidlitz Powders, twelve in box.
Mustard, powdered, two ounces.
Syrup of Ginger, two ounces.
Syrup of Ipecac, two ounces.
Five-grain Bismuth Subnitrate tablets, fifty in bottle.
Carbolated Petrolatum, one tube.
Boracic Acid, one ounce.
Chlorate of Potash tablets, twenty-five in bottle.
One bottle Soda Mint tablets, fifty in bottle.
One-dram bottle Oil of Cloves, labeled poison.
One small package Antiseptic Gauze.
One tin Talcum Powder.
One-quarter pound Absorbent Cotton.
Six Gauze Roller Bandages, three large, three small.
Two Red Cross First Aid Outfits.
One small bottle Collodion with brush.
One box Tooth Plasters.
One box Corn Plasters.
One Sharp Knife.
One pair Scissors.
One Clinical Thermometer.
Pins, common and safety.

The uses of the articles listed will be given in the descriptions of the various diseases and injuries, but it is thought that a few words on the subject will be of value here.

ALCOHOL.—Used externally in sprains, strains and bruises. Will take the place of any liniment for this purpose.

AROMATIC SPIRITS OF AMMONIA.—A stimulant, in one-half to one teaspoonful doses in half glass of water, in fainting, shock or any condition of weakness or depression.

CASTOR OIL.—A mild purge. Dose one-half to one teaspoonful for an infant, one to two teaspoonfuls for a child. Use one or two drops for something in eye.

Seidlitz Powder.—Mild purge for constipation, sick stomach or bilious headache.

Mustard Powders.—Teaspoonful in a glass of luke-warm water to cause vomiting.

Syrup of Ginger.—For cramp in the stomach and diarrhea with cramps. Dose, one-third teaspoonful in a glass of water.

Syrup of Ipecac.—Specially used as an emetic (to make one vomit) in croup in children. Dose, one teaspoonful.

Bismuth.—Four tablets powdered afford a safe remedy in diarrhea.

Carbolated Petrolatum.—Used externally for burns.

Boracic Acid.—Dissolve as much as possible in water. This solution is an excellent eye-wash.

Chlorate of Potash.—Allow one tablet to dissolve slowly in mouth for sore throat.

Soda Mint.—Use in case of indigestion.

Oil of Cloves.—For toothache; a drop on cotton in cavity

Talcum Powder.—For all inflammations and irritations of skin.

Antiseptic Gauze.—To cover wounds.

Gauze Bandages.—To hold wound dressings, splints, etc., in place.

Red Cross First Aid Outfit.—A convenient dressing for wounds. This outfit is packed in both metal and cardboard containers. Both protect the contents well from accidental contamination in handling, but the metal box will stand much harder service. The contents are in three parts: a gauze bandage, a triangular bandage, and two safety-pins. Each part is enclosed separately in paper. The gauze bandage has a pad sewn to its center and is so folded that this pad may easily be put on a wound without being touched. That is the great advantage of this dressing. The triangular bandage has printed on it illustrations showing methods of application. The safety-pins are intended for holding the dressing in place. Directions will also be found in the container.

Collodion.—Paint on slight injuries of skin.

TOOTH PLASTERS.—For aching teeth.

CORN PLASTERS.—To prevent rubbing of tender corns.

**General Directions.**—Certain general rules must be followed when you have to take care of anyone who has taken sick or who has met with an accident.

Don't get excited and don't get hurried or flustered. It is rarely that great haste is necessary.

Keep people away. A patient needs all the good air available.

Loosen any tight clothing.

Always put a person in a lying down position with the head not raised, unless the face is very flushed, when a small pillow should be put under the head.

Don't be in too much of a hurry to get your patient into bed. Always be sure that before doing so you are not going to do further injury.

**Above all things, unless you are sure that what you are trying to do is not beyond your power, send for a doctor at once. In doubt, send for a doctor anyway.**

**Shock.**—Every injury, except the most slight, is accompanied by what is called shock. When the ends of the nerves receive a blow they carry the jar to the very delicate brain, and the effect there is called surgical shock or simply shock. Perhaps some time you have hit your finger with a hammer. You feel very sick for a moment and sit down. A clammy sweat breaks out; you are too weak to get up, and you hardly know what is going on around you. This is shock. It is more marked in a severe injury. Shocked people are often unconscious; they do not know or care what is happening around them; they lie prostrate and cold, with weak pulse and shallow breathing. This may grow worse and cause death. The point is that you must never forget that in any injury shock is very likely to be present and must be treated. The treatment is to stimulate the body in every way. Lay the patient flat on his back, so that the heart can easily pump blood into the brain. Cover warmly, placing hot bottles or bricks around the body, if procurable. Be careful to have them covered so that they will not cause burns. Rub both arms and legs toward the body, but do not remove the coverings to do so. As soon as a shocked person can swallow, give him a half-teaspoonful of aromatic spirits of ammonia in half a glass of water, then hot tea or coffee. Keep the patient warm and well covered until recovery is complete. Always send for a doctor unless shock is very slight.

## FIRST AID FOR INJURIES.

First aid treatment of the common injuries is not nearly so difficult as is sometimes supposed. One fact must always be remembered, however. Any injury in which the skin is pierced through, or, in other words, in which there is a hole in the skin (slight scrapes and scratches may be disregarded), has the additional danger of surgical infection and blood-poisoning. Whatever else we do, we must always try to prevent this.

Prevention of infection was first known some years after our Civil War, but since that time it has resulted in the saving of hundreds of thousands of lives more than were lost in that war and all later wars down to the present time.

Injuries in which there is no break in the skin will be discussed first, it being understood that with these we do not have to worry about surgical infection or blood-poisoning.

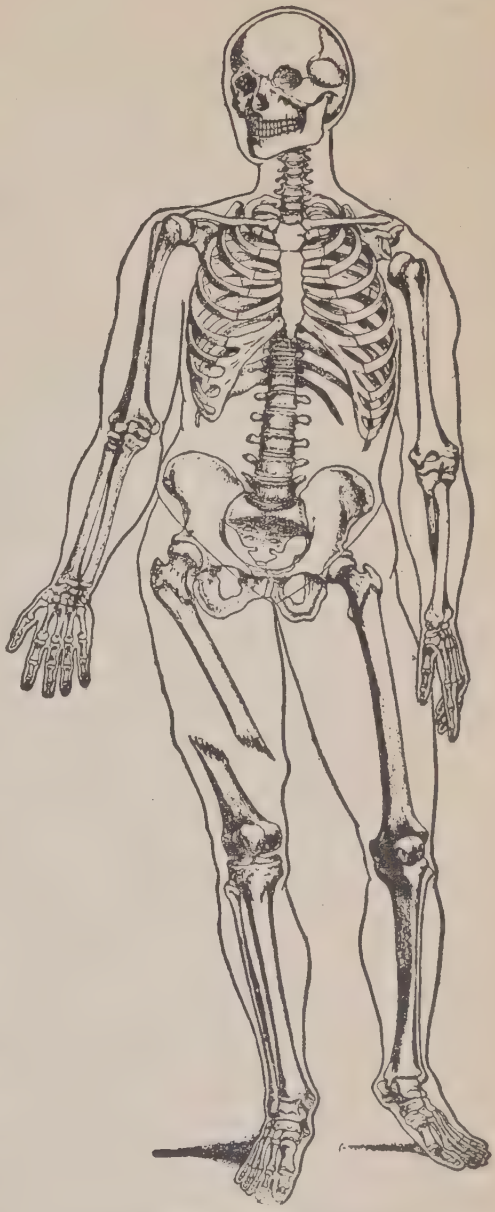
### INJURIES IN WHICH THERE IS NO BREAK IN THE SKIN.

**Broken Bones (Fractures).**—These are the commonest severe injuries. Our bones are brittle and break much as would a dry stick when sufficient force is applied. Moreover, the broken ends of a bone are very sharp and jagged, and unless the proper treatment is given may do a great deal of additional harm.

There are two kinds of fractures—simple and compound. The former is what we have been talking about. In this the bone is broken but it does not stick through the skin. In a compound fracture, on the other hand, the skin is pierced. This is really a wound, and the wound should be treated first and the fracture afterward in the usual manner.

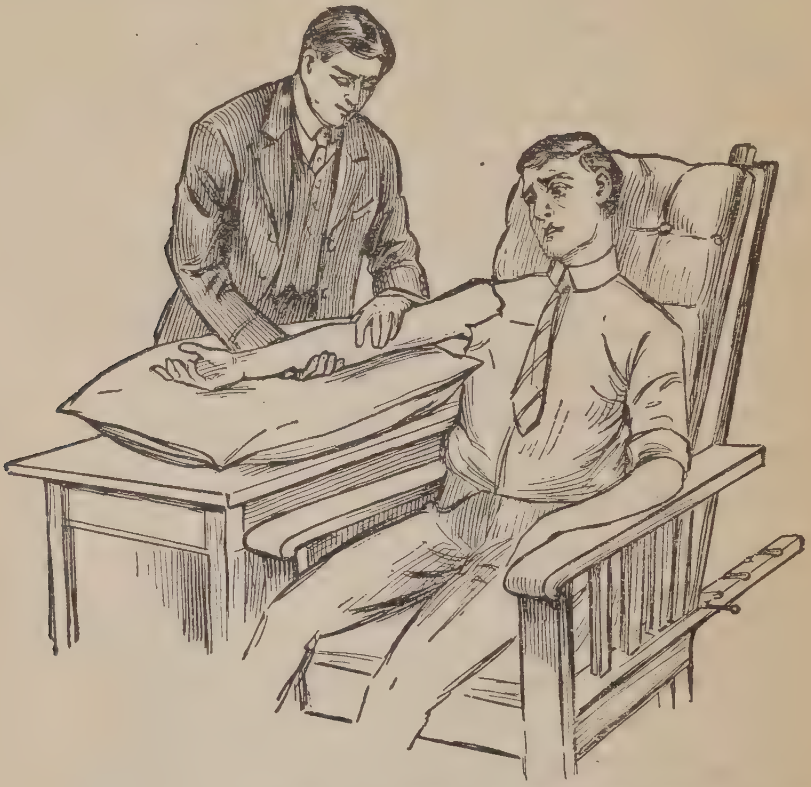
How do we know that a bone has been broken? As a matter of fact, we cannot always be certain, but if there is any doubt we should always treat as a fracture, as this will help to prevent dangerous consequences.

First you see, or the injured person tells you, that he has had a fall or blow. He may say he felt the break; he complains of pain at the fractured point; there is a tender spot there; he cannot move the leg, arm, finger, or toe which is broken. The fractured part is deformed. That is to say, its shape is changed from that of the other side of the body, which has not been injured. You may feel the break by running the finger along the bone. If the limb is moved, it does not move altogether, but doubles over where the break is. You or the injured person may feel the pieces of bone grate together at the break. This is a serious injury, so there will be a good deal of shock.



FRACTURED THIGH-BONE

Now what should you do in case you have a broken bone to deal with? Of course you must send for a doctor at once, as this serious injury requires very skillful care. Before his arrival your object is to prevent the simple fracture from becoming compound, or, in other words, to prevent the sharp, knife-like edges of the bone from penetrating the skin. The bone must be prevented from bending at the point of breakage. If a doctor is coming soon and you do not have to move the injured person away from where he is, put the limb in which the bone is broken in a comfortable position on a pillow. While doing this be sure not to let the bone bend at the break. In lifting the limb to the pillow, put one hand under the limb and the other above the place of fracture, and lift with both hands at the same time, not allowing the bone to bend. Be sure that the limb is not bent when you have it in position on the pillow. If the patient complains of a great deal of pain, you may be almost sure that you have not succeeded in putting the break in the proper position, and you should try gently to better matters.



PROPER WAY OF LIFTING FRACTURED LIMB TO PILLOW.

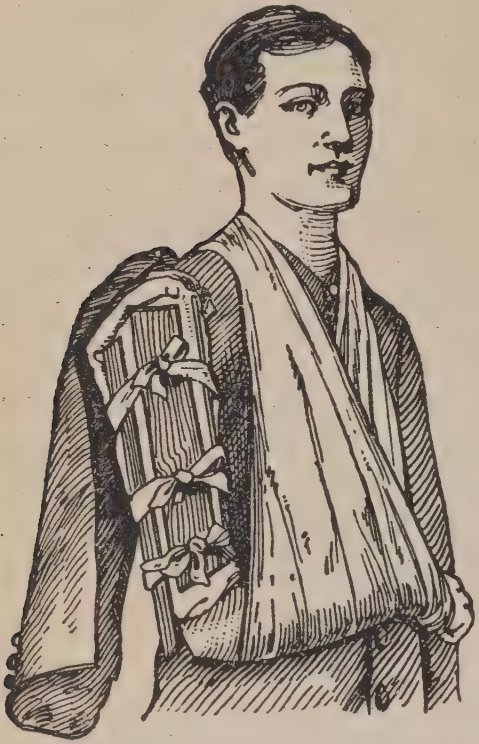
Suppose, however, that you do not expect a doctor for some time, or that you have to move the person with a broken bone from one room to another. In that case you should set the fracture and hold it in position by splints. Setting a fracture is often a very simple matter. This means putting the broken bone in the same position which it had before the break occurred. In the lower leg, for example, the bone is simply gently pulled into place. You do this by comparing it with the uninjured leg. When it looks just like the uninjured leg you will know that it is set. A word of warning should be said here. Never be rough and never bend the limb at the break. If you are causing a great deal of pain, or if the patient resists, it will be safer not to go further, but to hold the limb in its present position by splints.

Some kind of splint will be needed whether the bone is set or not. Under the splints padding will be required. The object of the padding is to prevent the hard splints from pressing on the skin and causing pain and perhaps further injury. Padding is needed for every point where, without it, the splints would press on the skin. If the patient is wearing heavy winter clothing, this will be all that is required for padding. With thin clothing other padding is necessary. Cotton-batting is an excellent material for this purpose. If it is not at hand, pads of cloth will do. Padding an inch thick will answer. It is especially necessary for bony points, as, for example, the ankle bone in a fracture of the lower leg. For splints, flat boards are best. Heavy cardboard is useful, as are also wire netting and pillows with a board outside. Canes, umbrellas, broom handles, etc., may be employed in case of emergency, but it is much better to have wide splints, so that the bandages will not press so hard on the limb. The splints should be long enough to extend beyond the joints, above and below, when possible. Splints are tied in position by lengths of bandages or by strips of cloth. Put on as many lengths or strips as you find necessary to hold the splints firmly in place, but do not allow any to press on the break. These strips or lengths of bandage encircle everything, of course, being put around splints, padding and limb.

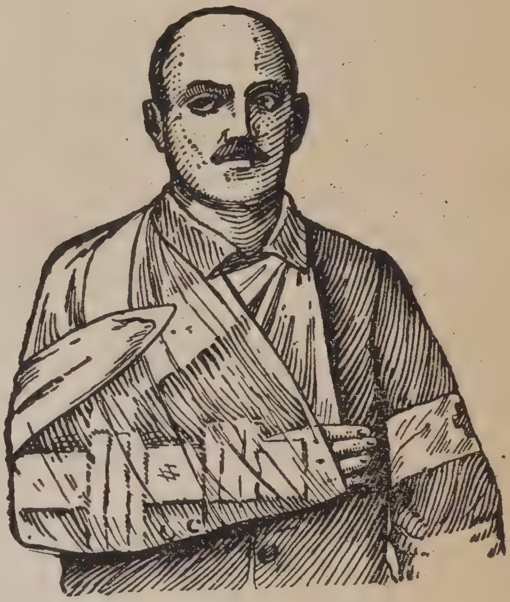
**Be very careful not to tie bandages so tightly as to cause pain, and be prepared to loosen if patient suffers. Treat shock.**

The treatment of the more common fractures will be specially described. Other fractures must, of course, be treated on the same general principles.

Broken Upper Arm.—Two splints inside and outside, elbow at right angles and arm in sling.



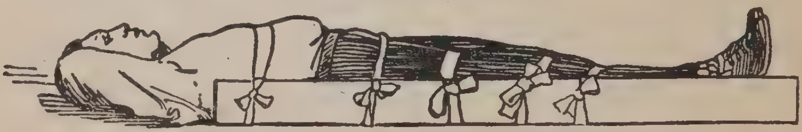
SPLINTS AND SLING IN PLACE FOR BROKEN UPPER ARM.



SPLINTS AND SLING IN PLACE FOR BROKEN FOREARM OR WRIST.

Broken Forearm or Wrist.—Elbow at right angles, thumb up with two splints at inner and outer side of forearm, wide sling covering and supporting elbow.

Thigh.—Very long outer splint from armpit to below ankle, inner splint from crotch to below ankle. Five strips will be required to hold splints in place. The upper ones must be long and must go around body.



SPLINT IN PLACE FOR BROKEN THIGH.

Lower Leg.—Two splints, inner and outer, both from just above knee to just below ankle. A pillow also makes a good splint here.

**Dislocations.**—These injuries are fortunately much more uncommon than fractures. A dislocation is described by its name. That is to say, in a dislocation the head of a bone is dislocated or pushed out from its socket at a joint. As with fractures, the cause is usually a blow or fall, but sometimes, especially if the same dislocation has occurred before, a person throws a joint out by a violent muscular movement. In a dislocation there is change in shape as compared with the other side of the body, just as in fracture. In a dislocation, however, instead of unnatural movement there is less than natural movement, as the head of the bone is held firmly in its new position. Sometimes it may be felt here. Of course there is pain from pressure on sensitive nerves.

A doctor's services are urgently needed for a dislocation, as attempts in unskilled hands to put the head of the bone back into place may cause very serious additional injuries. Send for a doctor at once, therefore; treat shock, but make no attempt to go further, except for the two dislocations which are described below. While waiting for the doctor, put the patient in a comfortable position and apply hot cloths, frequently changed, to the injured joint.

DISLOCATION OF THE JAW is comparatively easy to treat. This is fortunate, as the pain is severe. As the mouth is open and the patient will tell you he has felt his jaw slip out, you can hardly make any mistake in what has occurred. Wrap your thumbs in cloth, so that they will not be bitten. Put them into the mouth on top of the lower teeth on each side of the jaw, with the fingers outside. Pull and push the jaw down and it will snap back into place. When it starts to do so, slide your thumbs out to the inner side of the cheeks so that they will not be bitten. No bandage is required if the injured person is very careful not to open his mouth wide.

DISLOCATIONS OF THE FINGERS (except those of the second joint of the thumb, which are difficult even for a doctor to treat) present little difficulty. Simply pull the finger away from the hand on one side of the dislocation and toward it on the other. No bandage is needed.

**Sprains.**—When the force has not been sufficient to cause a dislocation a sprain often results. The twisting of the cords about a joint results in the breaking of small blood vessels, and the escape of the blood and the liquid part of the blood in and around the joint. Sprains are so familiar, though, that it is hardly necessary to spend much time in describing them.

There is pain in the joint at once, which is increased by motion. There is swelling, and this may be great, but the bones are not broken and the head of the bone is not out of place. The amount of shock depends on how severe the sprain is. Remember, a severe sprain is no joke. Doctors sometimes say that they would rather treat a simple fracture than a severe sprain. When in doubt send for a doctor. In any event do not wait for him. Raise the injured joint as much as possible, so that it will get less blood. Apply very cold water, which will also help to limit the swelling. This may be done by laying on cloths wrung out in cold water, by sprinkling the joint with cold water, or by placing it under a cold-water tap. Keep up this treatment, of course with intervals for rest, for twenty-four to forty-eight hours. Do not allow the patient to move the joint. With knee and ankle sprains the patient should not be permitted to walk. Treat shock if necessary.

**Strains.**—In a strain the same thing has happened as in a sprain, but in this case the injury is in the muscles and not in the cords. One knows practically always when he has strained a muscle. A doctor is seldom needed. Rest is necessary, just as in a sprain. Rubbing will relieve. Half water and half alcohol is a good mixture for this purpose. The rubbing should always be toward the body. At first it must be light, on account of the pain, but after a time harder rubbing limbers the muscles up more quickly.

**Bruises.**—Everybody knows what a bruise is. Slight bruises require no treatment. In more severe ones it is possible to lessen the pain and swelling. Ice in a cloth and cold water are good remedies. Half alcohol and half water have the same effect.

Upon a bruise of the eye, or so-called black eye, a knife blade is sometimes placed. This is cold, and will therefore contract the vessels and limit the swelling.

### INJURIES IN WHICH THERE IS A BREAK IN THE SKIN.

Such injuries are called wounds. Whenever we think of wounds, most of us think of their dangers as due to great loss of blood. This is not the great danger in most wounds. **In ninety-nine out of one hundred wounds bleeding is not dangerous. In every wound there is danger of infection.**

**Wound Infection.**—This being the case, you must know what infection of wounds is and how to prevent it. In every wound one of two things happens. On the one hand, a wound may heal quickly, with little pain or distress, and with no danger to the patient's life or health. In this case the wound has **not** become infected. On the other hand, in the course of three or four days the wound may become red and angry; it will throb with pain and the patient may have chills and fever and feel sick. Possibly he will grow very much worse. This is an **infected** wound. Blood-poisoning may follow and death finally occur.

Now what is the cause of wounds becoming infected? Germs, which are also the cause of contagious diseases. The germs are not the same as in contagious diseases. In wounds they are called pus germs. They always come from outside the body. As in contagious diseases, the germs do not have it all their own way; the white cells in our blood take care of some of the pus germs and prevent them from doing any harm.

Some germs will undoubtedly be driven into the body in every wound. Our object should be to prevent the introduction of more, and in this way to give our white blood cells the best possible chance to destroy the few that have entered. Fortunately pus germs do not float about in the air, so that there is no danger in exposing a wound to the air. They are found on our hands, on knives, scissors, clothing and in water. Surgeons have found a way to kill them, however. Advantage has been taken of this knowledge to prepare surgeons' gauze that is free from germs.

This gauze is simply cheesecloth which has been put through a special process to kill the germs. It can be bought in any drug store. It should be used to cover every wound, and should be kept on hand in every household, just like any other medicine which is necessary. Never wash a wound, for, as has been stated, pus germs are found in water; instead, put on a pad of gauze at once, being very careful not to touch that part of it which is to go on the wound, for, as pus germs are found on our hands, this would infect the gauze and the wound. The covering of a wound is called a dressing, and complete dressings, ready for use, may be purchased. These are so made that they can easily be put on a wound without being infected by handling, and are therefore somewhat safer to use than ordinary gauze. The Red Cross dressing which is of this kind has been described.

CORRECT WAY OF ADJUSTING BANDAGE.

If you have no gauze and cannot procure any quickly, you may take a folded towel which has recently been laundered and boil it for ten minutes, squeezing out the water but not touching the surface which is to go on the wound. This is, however, by no means as safe to use as the prepared gauze.

Of course it is clear from what has been said that one must never touch the wound while putting on the dressing. Remember, too, that no great hurry is necessary, as the air will not infect the wound. As soon as the gauze has been put on it should be held in place by a bandage. In applying this, all that is necessary to do is to wind it round and round till the gauze is covered and held firmly in place. Whether the bandage looks neat or not matters little. The important part of the dressing is the inside and not the outside.

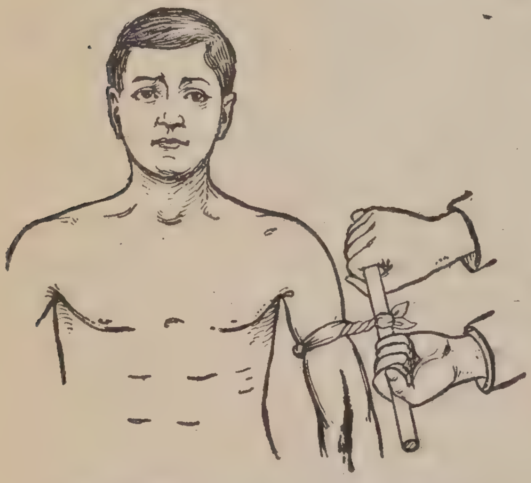
All serious wounds should be shown to a doctor as soon as possible. In any wound, no matter how slight, if after three or four days inflammation occurs (which will show itself by pain, heat, redness and swelling in the wound), a doctor should be called, for you cannot tell how serious the consequences may be.

I am sometimes asked about collodion, plaster and peroxide of hydrogen. None of these articles possesses any surgical advantages over the dressing which has been described, and they should never be used except on slight wounds not through the skin. Collodion is convenient for slight scrapes of this kind, as is also court plaster, and they rarely cause trouble. If inflammation follows, however, it will be much safer to see a doctor. Peroxide serves no useful purpose as a first aid material; because it bubbles does not mean that it is cleaning the wound. On the contrary it may mean that the wound is being infected.

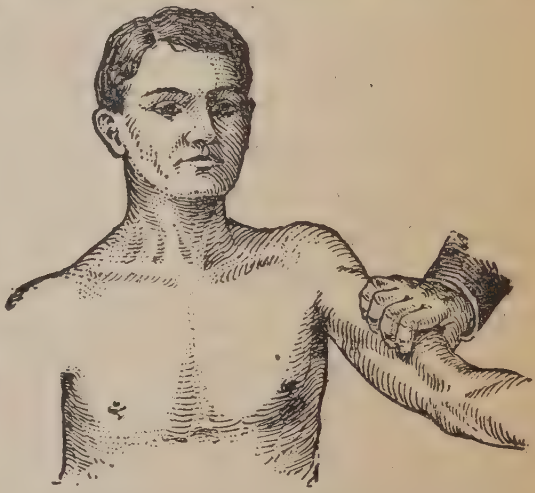
**Bleeding.**—It has been explained that there is serious bleeding in about one wound in a hundred. In this one case everything must give way, if necessary, to stopping the bleeding or death may occur. Now there are three kinds of bleeding, depending upon the kind of blood vessel from which the blood comes. From the fine capillaries the blood oozes slowly, and can be stopped by the pressure of the dressing. This is also the case with all except the largest veins. Arteries remain open, however, and from them a considerable amount of blood will be lost in a short time. This blood is bright red, and is thrown out in spurts with each beat of the heart, while with the veins and capillaries the flow is steady and of a darker color.

The only veins in which it is likely to prove difficult to stop bleeding are those of the neck, and enlarged veins of the legs called varicose veins, which sometimes burst. No time is to be lost if bleeding is from the large veins of the neck. At once put your fingers on the bleeding points and press on the vein to stop the bleeding. Send a hurry call for the doctor. If possible, keep your fingers on the bleeding point till he arrives. If you cannot do this, do not remove the pressure until gauze or cloth has been stuffed into the wound to replace your fingers. Varicose veins are not so bad as this, but bleeding from them is alarming and dangerous enough. A doctor is required. The patient should lie flat on his back with his head low, all bands around the leg should be removed and it should be raised so that it is at right angles with the body. The usual dressing of gauze and a bandage should be put firmly in place over the bleeding point.

Bleeding from the arteries is most alarming. The amount of blood lost depends, of course, on the size of the artery. If the stream of blood is a really fine one, the pressure of the dressing will stop it. In large arteries, however, this plan will not succeed. Of course, if a great deal of blood were being rapidly lost, one would be justified in forgetting all about infection and putting his finger directly on the bleeding point in the wound, afterward replacing this with enough gauze to maintain the pressure. There is another point to be remembered about arteries, however. They are just like a hose, and pressure on the hose or artery at any place nearer the source of supply, or the heart, will stop the stream below. Of course you must find a place where you will have

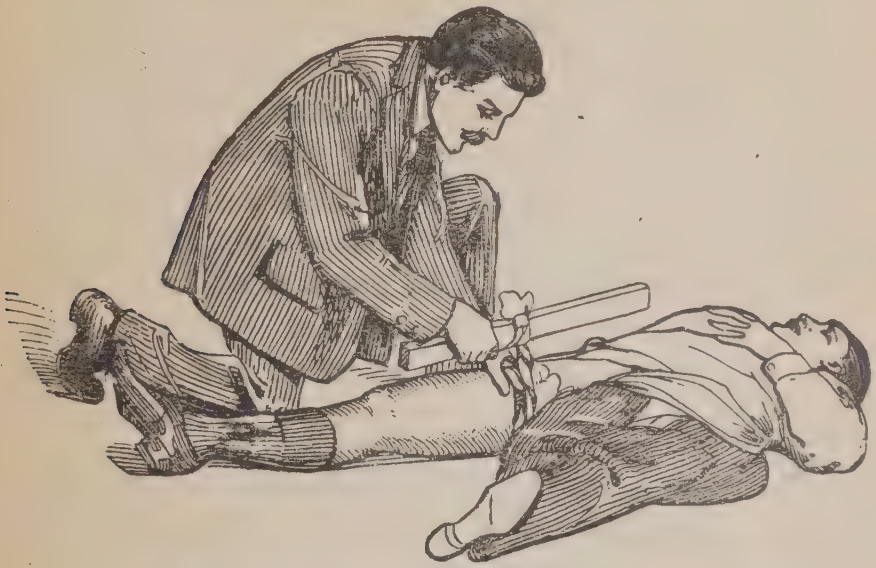


APPLYING TOURNIQUET TO STOP BLEEDING FROM ARM.



APPLYING PRESSURE TO ARTERY OF ARM.

something hard to press the artery against. In the arm this is in the middle of the upper arm, just on the inner side of the big muscle. In the leg it is not so easy to find. It is high up on the front of the thigh, midway between the point of the hip and the center of the crotch. Pressure here back on the bone will stop bleeding from an artery below. Make pressure first with the fingers. They will tire quickly and must be replaced by what is called a tourniquet. This is an apparatus which has a pad to put on the artery and a strap over the pad encircling the limb. By twisting, the strap is tightened and presses the pad down on the artery, thus checking the flow of blood. Make your strap of a towel or handkerchief. The ends should be tied together so as to encircle the limb. Any hard pad, of the size of an egg or a little larger or smaller, will do. This should be put in the towel to rest over the artery. A darning ball makes a good pad. Pressure is made by putting a stick in the loop of the tourniquet at the outer side and twisting.



APPLYING TOURNIQUET TO ARTERY OF LEG.

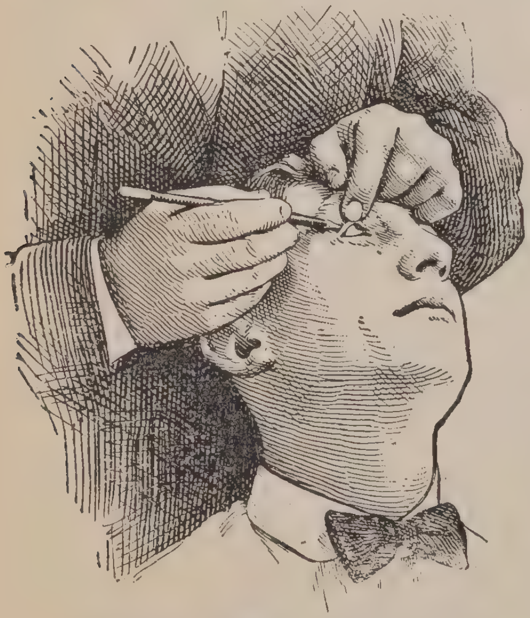
Another rather rough method of stopping bleeding from arteries at any point below the knee or elbow is to put a pad in the bend of the knee or elbow and to bend the leg or arm at the joint as close as possible, so that the pad will be firmly squeezed. The bent limb must then be tied in this position.

**Whatever the kind of bleeding may be, it is best not to give stimulants until it has been stopped, for stimulants increase the force and power of the heart, and so the blood supply.**

## INFECTED AND POISONED WOUNDS.

**1. Boils and Felons or Runarounds.**—These are due to the entrance of pus germs through little cracks in the skin, which may be so small that they have not been noticed. If you will get a doctor to care for them and will not waste time in poulticing, you will save considerable suffering.

**2. Bites and Stings of Insects.**—These are really very slight wounds, in which poison has been introduced, with the production of a considerable amount of irritation. For mosquito bites, ammonia is the best remedy, as the poison is an acid. The same remedy is also good for other insect bites, including spiders' stings. The sting should be pulled out if it sticks in the wound. Afterward cloths moistened in cold water, wet salt or wet clay will relieve the burning.



TURNING OVER UPPER LID TO REMOVE FOREIGN BODY.

## INJURIES OF SPECIAL ORGANS.

**1. Eye Injuries.**—Of course the commonest eye injury is the lodging of some sort of a speck between the eyeball and the lids, or on the surface of the eyeball. Don't rub the eye; close it and the tears may wash the speck out or into view, so that it can be removed. If this does not succeed, close the eye and blow the nose hard. If still unsuccessful, look at the lower lid, turning it down gently. Remove speck with the corner of a clean handkerchief. It is much harder to see the inner surface of the upper lid. To do this, seat your patient in a chair with the head bent backward, stand behind him, and place the small end of a pen handle about one-half an inch above the edge of the lid. Have him look down, and turn the lid back over this. Remove the speck as before. But if you can't do all this with the greatest gentleness, don't do it at all, but soak some soft cloth in cool water and bandage this in place on both eyes. Then send for a doctor. Do the same when the eyeball is injured.

When a speck has been removed from the eye the latter will be soothed by a couple of drops of castor-oil. If acid has entered the eye, neutralize with baking-soda and water. Lime or any other alkali should be neutralized by weak vinegar solution in water.

**2. Ear Injuries.**—These are not particularly common. Children sometimes put shoe buttons or other small articles into the ear. Have a doctor remove them. You would be likely to do serious injury if you tried. If an insect enters the ear, drop in a few drops of castor oil or sweet oil; the doctor can syringe it out later. The practice of removing wax with all sorts of sharp instruments poked in deeply is a dangerous one. It may result in making a hole in the ear-drum and may cause partial or total deafness.

**3. Injuries of the Nose.**—Shoe buttons are pushed into the nose by children, as well as into the ear. There is no objection to removing them from the nose if they can be seen, and little force is necessary. The commonest trouble in the nose is of course nosebleed. This may be due to a slight injury or may come on without an injury, especially in children. Slight nosebleed does no harm and does not require treatment. It may prove difficult to stop severe bleeding, though this is not usually the case. Put the patient in a chair with head hanging back. Loosen collar and apply cold to the back of the neck by means of a cloth wrung out in cold water. A roll of paper between the gum and the upper lip will help, as will pinching the soft part of the nose.

If these measures are not successful, salt and water may be snuffed up the nose. If bleeding still continues you need a doctor.

While waiting for him, make a cotton plug and push it with the end of a pencil into the nostril from which the blood is coming.

## BURNS AND SCALDS.

Burns are caused by dry heat and scalds by moist heat. With both the injury may be very shallow, skin-deep only, or very deep, down to the bone. Shock is often severe.

Treatment.—Of course, when the skin is burned through, the protection that it gives the body against germs is lost. On the other hand, the charred or cooked body tissues in themselves form a wall through which germs cannot pass. The lesson to be learned from this is that with burns and scalds it is not necessary to take the very great care against the entrance of germs that is essential in a wound. All burns which are very deep, covering a good deal of surface, or in which shock is severe, require the services of a physician.

In all burns your object will be to stop the pain by protection from the air. Good remedies are a paste made of baking-soda and water, carbolized vaseline, or any grease like lard—even cream. Put one of these substances on the burned part, cover with a piece of cloth, and bandage or tie in place. Surgical gauze may be used for the cloth, but this is not necessary. Treat shock.

In burns from strong acids or alkalis wash off as quickly as possible. For acids, neutralize with baking-soda in water or soapsuds; for alkalis, use vinegar or lemon-juice. Afterwards treat like other burns.

## HEAT EXHAUSTION AND SUNSTROKE.

Heat exhaustion is practically a faint due to exhaustion produced by overheating. Both this and sunstroke really occur much more often in hot, close rooms than in the open air. Heat exhaustion is treated just like fainting. Actual sunstroke is quite a different thing. Instead of a pale face, weakness, and a skin wet with perspiration, the face is red, the eyes are blood-shot, the person lies in a stupor, and the skin is dry and so hot that it burns the hand. Quick work is needed here. Send for a doctor or an ambulance at once, but do not wait a minute before beginning treatment. Take patient to a cool place. Remove the clothing, put the patient in a cold bath, or wrap him up in sheets wrung out in cold water; at the same time rub him continuously to bring the hot blood to the surface. As soon as the patient can swallow, give him plenty of cold water to drink, but **never** give stimulants.

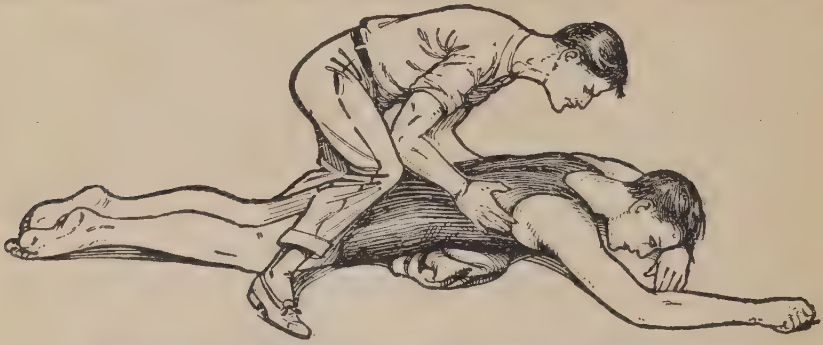
### SUFFOCATION.

**Gas-poisoning, Drowning, Electric Shock.**—Suffocation is due to anything which prevents the air from entering the lungs. Gas-poisoning and drowning are the commonest causes. Choking by something lodged in the windpipe may also cause temporary suffocation. Electric shock is another cause, though it does not act in the same way; paralysis of the muscles stops the breathing just as surely as if the air passages were blocked. Whatever the cause of suffocation, the results on the body are the same. The face gets blue, and, if unconsciousness is not complete, there are regular convulsions in the attempt to get air. In more severe suffocation, as in drowning, strong electric shock, and gas-poisoning, the suffocated person is totally insensible and there is no attempt at breathing.

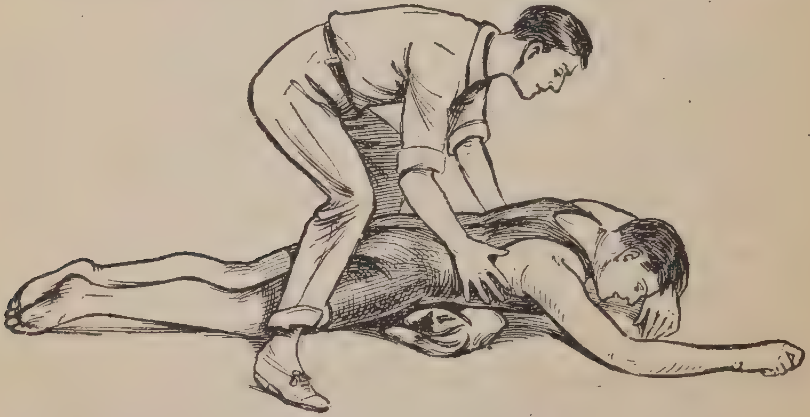
The first thing to do is to remove the suffocated person from whatever is causing the suffocation. If he is in a room filled with gas, he must be taken into fresh air. In the same way he must be taken from the water or from contact with an electric wire. Send for a doctor at once.

In such cases try immediately to start the breathing again. Begin this even before the doctor arrives. Breathing may be caused artificially through certain movements until the patient finally recovers sufficiently to breathe of his own accord. This is called artificial respiration.

Begin artificial respiration by laying the patient face down upon the floor. Stretch his arms straight above his head and let them rest on the ground in that position. Turn his head a little to one side so that the air will not be blocked in entering the nose and mouth. Next stand astride of the patient, opposite his hips and facing his head. Put your hands on each side of his back below the shoulder blades. Your hands now rest upon the patient's lower ribs. The fingers are spread out pointed toward the head and away from the spine. Now swing your body forward, keeping your arms straight and allowing your weight to rest on the patient's back; then swing back, taking all your weight off the patient. Do this fourteen to sixteen times per minute. This imitates breathing. When you put your weight on the patient you press his chest together and force the air from the lungs; when you release the pressure the chest springs back into place, and the lungs expand and draw air into them. **Recovery may be very slow; keep up your work for at least two hours.** Compel bystanders to stand back, as the patient needs every bit of air he can get.



EXERTING PRESSURE TO PRODUCE EXPIRATION.



REMOVING PRESSURE TO PRODUCE INSPIRATION.

While artificial breathing is going on, some one should remove the patient's clothing. If necessary he should be dried with a towel and then covered with a blanket. This work must not interfere with the operator who is causing artificial respiration.

When the patient begins to breathe—but not before—he should have his legs and arms rubbed toward the body. This should be done without removing the blanket. The patient will not breathe well all at once, and you will have to help him at first by continuing the artificial respiration every little while. Of course, if he stops breathing at any time, you will have to keep up the artificial respiration.

After he is breathing well put him to bed. Surround the patient with hot-water bottles and cover him up well. As soon as he can swallow, give him some hot coffee. Open the windows wide and allow him to sleep quietly.

Choking, produced by something lodged in the throat, requires, not artificial respiration, but a smart slap on the back which will dislodge whatever is blocking the air passage. If this does not succeed, raise by the feet so that the choked person is upside down. You may have to slap the back while he is in this position.

### UNCONSCIOUSNESS FROM AN UNKNOWN CAUSE.

Of course you should always, if possible, find out the cause of unconsciousness; but, if you are unable to do so, you must place the sick person in a lying position, with nothing under his head if he is pale, and with his head on a pillow if his face is red. Send for a doctor as soon as possible.

## POISONING.

In very sudden and severe illness, especially with vomiting and bad cramping pains, the possibility of poisoning must be thought of. Probably the bottle or glass from which the poison has been taken may be found. In cases of food-poisoning, all who have eaten the same food are likely to be affected.

Don't delay in sending for the doctor, and, if you can, let him know what poison has been taken, so that he can bring the proper antidote. Don't delay in giving something to cause vomiting. Mustard and water, salt and water, and syrup of ipecac will do this; that is, they are all good emetics. Don't worry about the exact dose, but give quickly. Also have the poisoned person drink large quantities of lukewarm water, so that by vomiting all the poison will be washed out of the stomach.

## FIRST AID FOR SICKNESS.

**Fever.**—Fever may be due to a number of different causes, but, whatever the cause may be, it is a danger signal that something is quite wrong. This does not mean that one need become panic-stricken if a case of fever has to be cared for. This would not be wise, and yet the possible gravity of fever must not be overlooked.

The skin of a person with fever will probably feel hot to the hands, the eyes will be very bright or perhaps very dull, and the patient may be delirious or excited, or in a stupor. It is always a good plan to take the temperature in every case of illness. This is done with the clinical thermometer, which is like the ordinary thermometer except that it is self-registering. That is to say, the top of the mercury or quicksilver in the tube remains in place after a person's temperature has been taken, so that the height of the temperature may easily be read.

To take the temperature, shake down the mercury to 95 degrees Fahrenheit or below. This is done by holding the thermometer bulb downward in one hand and striking the hand sharply against the other. This will jar the column of mercury so that it will fall. You had better have your doctor show you how to do this. Wash the themometer in clean cold water, shaking off the clinging drop. Put it in the patient's mouth, under the tongue, with the lips closed tightly. Leave it for five minutes, after which it can be removed and read. Wash the thermometer in clean, cold water before putting it back in its case. Remember that in fever the temperature is always higher at night, perhaps by two or three degrees, so that a high morning temperature is more serious than the same temperature at night.

The normal temperature is 98.40 degrees Fahrenheit. From that point to 100 degrees at night is slight fever; from 100 degrees

Fahrenheit to 102 degrees Fahrenheit is moderate fever, and from 102 degrees to 106 degrees high fever. Still higher temperatures are very uncommon. Children are much more liable to fever from slight causes than are their elders. **In any case of fever the place for the sick person is in bed,** if possible in a quiet, dark room. The patient should be lightly covered. He may be bathed in cool water. The food should be very simple; milk or a little milk toast will be all that is required. Plenty of cool water is necessary. The best medicine is a good dose of castor oil or a Seidlitz powder. Don't think of giving any of the patent medicines for fever. Most such remedies contain dangerous coal-tar products which weaken the heart. In high fever a doctor is needed at once. This is also true in moderate fever, if it does not fall in the morning or goes up again on the second night. Slight fever, if persistent, may indicate something dangerously wrong.

A word of warning should be said in regard to the use of the clinical thermometer. It is a good tool if properly used, and a poor one if used without intelligence. Probably no doctor is without patients who are regular thermometer cranks. Such people take their own or other people's temperature at all hours of the day or night, and make themselves and everyone around them miserable if they discover the slightest rises of temperature. The best way is to take the temperature in every case of illness, and then to call the doctor if there is a considerable rise of temperature, or if the temperature remains elevated for a couple of days. Afterward be guided by the doctor's advice. The subject is too complicated for any general rules.

**Colds and Coughs.**—Probably the ordinary cold is the commonest sickness. Colds may be prevented by not sitting in a draft, especially when heated by exercise; by changing wet clothing or shoes as soon as possible and taking a hot bath; by wearing sufficient clothing in cold weather, and by not changing till the weather becomes settled in the spring.

In order to break up a cold it is well to take a hot bath at night and to get into bed immediately. In order to cause free perspiration an extra blanket should be put on the bed and a large glass of hot lemonade drunk after getting into bed. Castor oil or a Seidlitz powder should be taken, just as in fever; and, as in fever, the food should be very light and simple; i. e., milk and milk toast. As long as fever is present the person sick with a cold should not be allowed to get out of bed. If the fever keeps up, if the cough is severe, or if there is much difficulty in breathing, a doctor's services should be secured, for there may be danger of pneumonia, tuberculosis, measles, or other diseases. Anyone with a cold had best be kept in one room continually, as moving from room to room with changes of temperature is likely to make the cold worse. Continued cough, with fever and loss of weight, very likely shows the beginning of tuberculosis. No delay should be permitted to occur in obtaining a physician's advice. Tuberculosis is curable in the early stages.

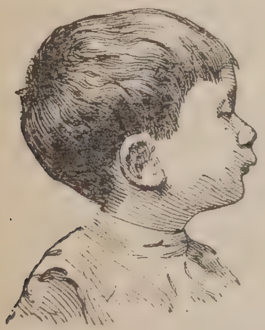
Cough medicines may be readily purchased, but that does not make them less dangerous. Most of them depend, for their quieting effect on the cough, on some preparation of opium. They are among the commonest causes of the opium or morphine habit. Snuffs and other preparations for cold in the head too often contain cocaine, and in using them one risks forming a habit worse, if possible, than the opium habit.

**Sore Throat.**—Of course this often exists together with a cold, or it may occur separately. The treatment is the same as for a cold. In addition, a chlorate of potash tablet may be allowed to dissolve slowly in the mouth every three hours. It will soothe the throat. A sore throat, with great weakness or with high fever, may mean diphtheria or some other severe infection. These, of course, require a doctor's care.

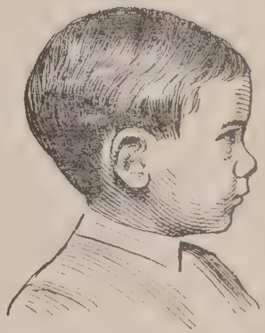
**Headaches.**—The commonest cause of headache is indigestion. This may be cured by a dose of castor oil or a Seidlitz powder, with milk and milk toast only for a day or two. This plan of treatment is useful in all forms of headache; but it should not be forgotten that headaches may be due to much more serious conditions. They are often the first thing noticed at the beginning of an attack of pneumonia, scarlet fever, or typhoid. Therefore, if headaches do not yield to the simple measures mentioned above, and especially if fever also exists, no undue delay should be permitted before a doctor is seen. Continued headache is not infrequently due to overuse of the eyes or to eye strain. Such conditions can be corrected only by doctors who are specialists on diseases of the eye. Nervous headaches are common in children, especially when something unpleasant is required of them. They often disappear when the child is interested in something else. It is well always to remember, in regard to headaches, that they may indicate something quite beyond first aid treatment, which requires a physician's care. The sooner his services can be procured the less danger there is, both immediately and perhaps for the future.

Headache remedies sold as patent medicines often contain the most dangerous drugs, and should not be taken any more than other poisons. Death or permanent injury may result if this advice is not followed.

**Mouth Breathing.**—Some children breathe through the mouth at all times, and some do so only in their sleep. Mouth breathing is generally due to growths at the back of the throat, which block up the passage through the nose. These growths are called adenoids. They may cause the face to take on a peculiar appearance, known as "adenoid face." What is more, they affect the



A FOUR-YEAR-OLD BOY WHOSE FACE IS DEFORMED BY MOUTH BREATHING.



THE SAME BOY AT FIVE YEARS AFTER ONE YEAR'S TREATMENT.

health, since not enough good air is supplied to the lungs. For these reasons the attention of a physician should always be called to mouth breathing. A slight operation may correct the condition which causes it.

**Diarrhea and Cramps.**—Diarrhea and cramps are due to the same cause—something in the stomach or intestines which is irritating. Both cramps and diarrhea are due to efforts to expel this irritating matter. Sometimes diarrhea alone is present, and sometimes cramps only. However, as stated above, both are due to the same cause. The irritation may be due to green apples, so dear to the heart and so bad for the stomach of the small boy, or it may be due to some other irritating food. The best treatment is to give something to get rid of the irritating material. Castor oil or a Seidlitz powder are the best household remedies. After the bowels have moved freely, twenty grains of powdered subnitrate of bismuth every four hours will check the diarrhea. If the cramps are severe, a little syrup of ginger in hot water will help to control the pain. A hot-water bag on the abdomen will also be valuable for the same purpose.

It is always well to take little food or water during such an attack, as they will make both the diarrhea and the cramps worse. When the patient begins to feel better, milk, preferably boiled, is the best thing to take, then some soft milk-toast, afterward eggs, getting back to the usual food gradually, and going back to milk if other food causes the diarrhea or cramps to return. Everybody probably has had attacks of cramps and diarrhea from which he has recovered after a day or more of discomfort. Sometimes, however, such attacks are very severe. The pain is intense, and the prostration is so great that one can hardly raise his head. The simple remedies mentioned may be given at once, with a teaspoonful of aromatic spirits of ammonia in half a glass of water for the prostration. Do not neglect to send for a doctor, however. You may have ptomaine poisoning or appendicitis. Remember that almost all patent cholera mixtures contain opium and are dangerous, and even deadly, for children.

**Constipation.**—This is by no means the unimportant matter that it is sometimes considered. On the contrary, if the bowels do not move regularly, chronic ill health often results, as there is constant absorption of poisonous matter from the intestines. For acute constipation a Seidlitz powder is as good as any other cathartic. If this condition becomes chronic, however—that is to say, if there is not a regular daily movement of the bowels—before resorting to pills, eat bulky food, drink plenty of water, and go to the closet at a regular hour. If this is not successful, it is much safer to consult a physician.

**Sickness at the Stomach and Vomiting.**—These are due, of course, to a cause similar to that of diarrhea; that is to say, to irritating matter in the digestive system. As in diarrhea, it is desirable first to get rid of the substance which is causing the irritation. Several drinks of warm water will cause vomiting and will wash out the stomach. The patient should then lie down in a cool place, lightly covered. Soda mint tablets or baking-soda will stop the sick feeling. Small lumps of ice sucked slowly have the same effect.

**Hiccough.**—This is due to indigestion. Holding the breath often cures it, as this forces down the big muscle separating the chest from the abdomen, the contraction of which causes the hiccough. A scare has the same effect. A good way to hold the breath is to do so while drinking a glass of water in small sips. If these fail, cause vomiting by drinking luke-warm water. This is practically a certain cure, as the irritating matter which causes the hiccough is thus gotten rid of.

**Croup.**—Croup is likely to frighten anyone who has children. Some children never have croup, but others suffer from frequent attacks. True croup, fortunately, though alarming enough, is not often dangerous. Beginning with a ringing cough and a croupy crow, the child soon becomes blue in the face and struggles to get its breath. Call a doctor, if possible, but get to work at once yourself. The first remedy to be given is something to make the child vomit. A teaspoonful of syrup of ipecac, followed by a drink of warm water, is the best medicine to cause vomiting in croup. Then wring cloths out in hot water and put them on the child's throat and chest. Cover them with a dry cloth, and change as soon as they grow cool. Some children always have a croupy cough when they catch cold. This is much like the cough of true croup, but the trouble does not go any further. Quiet and comfort the child; try to interest him in a favorite story, and he will soon become sleepy and then go to sleep.

**Convulsions or Fits.**—Convulsions in children are often due to indigestion, but they may be the first symptoms of serious disease. It is always best to make the child vomit. A teaspoonful of syrup of ipecac, followed by a drink of warm water, will do this best. Mustard in warm water is also good. Put the patient in the middle of a bed, and see that he does not fall off and injure himself, but do not try to prevent the convulsive movements, as prevention will do no good.

**Fainting.**—Fainting is due to a lack of blood in the brain. Of course you must supply the brain with more blood. Put the person who has fainted flat on his back. Do not raise the head, but put the feet on a pillow. Loosen the clothing, open the windows so that plenty of good air is supplied, sprinkle the face and chest with cold water, rub the arms and legs toward the body, hold smelling-salts under the nose. As soon as the person who has fainted can swallow, give half a teaspoonful of aromatic spirits of ammonia in half a glass of water. Do not be in a hurry to have patient get up.

**Skin Eruptions.**—Several of the common diseases of childhood have an eruption. If any child is out of sorts, therefore, and especially if fever is present, his body should be looked over to see if there is any breaking out. If so, he should be kept in a room separate from other children, and a doctor should be called in.

**Sunburn.**—Everybody knows what sunburn is, and that one can prevent it by protecting the face and hands from the summer sun, though this is not always done. As a matter of fact, any good toilet powder helps a good deal in preventing sunburn. It is treated by any soothing application. All good toilet creams, and even lard, are good remedies. They should be put on after washing the face or hands; but constant washing is not good, as it keeps up the irritation.

**Prickly-heat.**—This more severe and irritating disease of the skin is also caused by heat. In children especially it is often due to too much clothing. Any good toilet powder will help to prevent it. An excellent remedy for severe prickly-heat is one part of alcohol to three of water as a wash for the skin, which is afterward dusted well with talcum or any other toilet powder. Repeated attacks can be prevented, however, only by avoiding over-heating and by free sweating.

**Poison Ivy and Poison Oak.**—Poison ivy and poison oak both cause a severe inflammation of the skin. Some persons are much more sensitive than others and must, if they desire to escape severe suffering, keep away from both the poisonous oak and ivy. It should also be remembered that early in an attack a person may, by scratching, carry the poison from one part of his body to another. In severe cases it will be much wiser to consult a physician if this can be done.

A good treatment is to wash off the irritated surface with a boracic acid solution, then to dry it gently and to apply carbolized petrolatum (vaseline). This should be done daily. If the irritation is on the hands, this procedure should be carried out whenever they are washed.

**Toothache.**—The teeth make up a small part of the body comparatively, but they contain some very sensitive nerves, and when these are exposed they are exceedingly painful. Moreover, through decay of the teeth these nerves are very commonly exposed. Of course, toothache can be prevented to a very great extent by proper care of the teeth. They should certainly be brushed night and morning, and preferably after each meal. De-

cay can also be prevented to a very great extent by visiting a dentist every year.

To treat a toothache, if there is a cavity and you can reach it, clean it out with a little cotton on a toothpick; then wet another piece of cotton in oil of cloves and put it in the cavity. If you cannot reach the cavity, put a tooth-plaster between the gum of the tooth and the cheek. In place of this a piece of cotton wet with spirits of camphor is sometimes used. The burning pain is severe, but the remedy is effective. Of course these measures do not cure the disease, and if further trouble is to be avoided a dentist must be visited.

CLEANING THE INSIDE OF THE LOWER FRONT TEETH.
By permission Dr. M. H. Fletcher, Cincinnati.

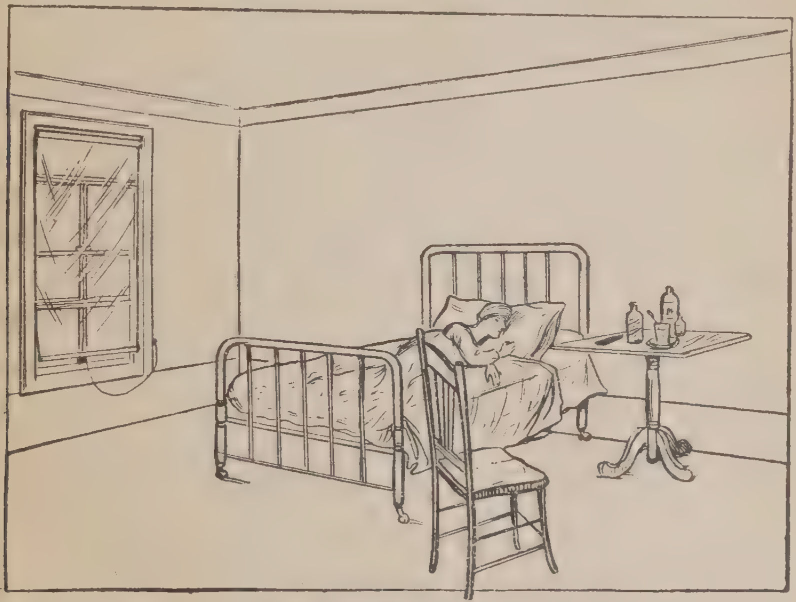
**Earache.**—Hot cloths or a hot-water bottle on the ear will often cure. A few drops of hot sweet oil in the ear, with a plug of absorbent cotton to retain the oil, is better in severe cases. Earache may result in perforation of the drum, however, and in partial or total deafness; therefore the attention of a doctor should always be invited to severe cases.

# CHAPTER IV.

## Preparations to Receive a Patient.

It sometimes proves as valuable to know how to get ready for a patient as it does to know how to give him first aid. What is said here applies mainly to helpless patients. Less elaborate arrangements would be all that would be necessary for slight cases of illness or injury.

**The Room.**—A suitable room must first be chosen. Ordinarily it is best to use the patient's own room, unless there is some good reason against it. For a severe injury, or for an absolutely helpless patient, who must be carried lying down on some kind of a stretcher, never select a room difficult to reach. Narrow hallways and steep stairs may make it so difficult to carry a patient to a room that, whatever its other advantages, some other room must be selected. Always see to it that the way is clear to the room selected. Chairs and other furniture which would be in the way should be removed from hallways. Rugs should



THE SICK-ROOM.

be taken up if there is any danger of the bearers' tripping over them. Give the bearers enough light, so that they may see what they are doing.

All unnecessary furniture should be removed from the sickroom. You will rarely need more furniture than a bed, two chairs, and a small table. Another bed or a kitchen table will prove very convenient, however, for temporary use in removing the patient's clothing. A few old sheets, an oilcloth, or even newspapers should be provided for the same purpose. The room should be warm but well ventilated, and the shades should be arranged so that the light will not shine in the patient's face.

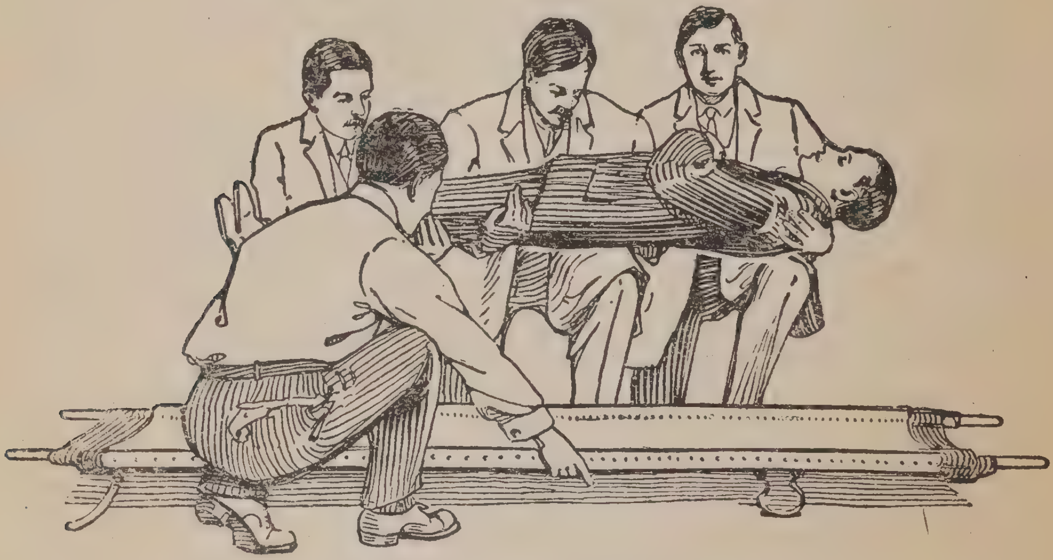
**The Bed.**—A single bed should be chosen in preference to a double bed. A moderately hard mattress is better than a soft one. Feather beds should never be used. Two pillows with slips should be provided. Two sheets and two blankets or comforters are required on the bed. Extra covering may be needed, and it is well to have it near at hand. In serious illness or injury, and when dressings must be changed, a draw sheet should be put on the bed, to prevent soiling the undersheet and mattress. For a draw sheet, take an ordinary sheet and fold it smoothly lengthwise till it is long enough to reach from the middle of the patient's back to his knees. Pin this and the lower sheet to the mattress with safety pins, so that they lie smooth. A rubber sheet is usually put under the draw sheet, but do not do this unless it is needed, as it will be hot and uncomfortable for the patient. With severe injuries there is always shock, so that in such cases especially the bed should be warmed with hot bottles or hot bricks. It is always well to have some of these at hand. The bed should be drawn out from the wall, and placed so that the patient may easily be lifted into it. Its permanent position should be such that the attendant can get at it from both sides.

**Carrying the Patient.**—A convenient way to carry a patient in a house is in a strong kitchen chair. The patient is seated in the chair. One bearer takes hold of the front legs of the chair, the other of its back, and it is tilted back so that the patient is almost lying down. The patient is carried to his bed in this position. Some patients must be carried lying down, however, on account of the seriousness of their condition, and no chances should be taken in this matter. **Always carry a patient lying down if there is any fear in your mind that sitting up may injure him.** For this some sort of a stretcher is necessary. The best stretcher—by far the best—is the regular type, with side poles, and a canvas bed between them, which is stretched by cross pieces. If this is not available, a light cot may be used, and this makes a fairly good stretcher. If you have neither of these, make a stretcher of a blanket. This is done by first putting the blanket on the floor. Two poles, about two feet longer than the blanket, are also required. One pole is put on the long side of the blanket at each side, and the blanket is rolled on the poles till space enough for the patient's shoulders is left between them. The stretcher should be turned over before being used. Be sure that there is enough blanket on each side so that it will not slip off the poles when the patient's weight is put on it. A good plan is to test it by lifting some one else first. Care will also be necessary that this stretcher does not come apart during transportation. A patient may, in case of necessity, be carried on a mattress.

It is better to have four bearers. Two are enough to carry the stretcher and the others are necessary to help the patient on the stretcher and to take him from it. If there are four bearers it is best to have three on one side of the patient and one on the other. If one side of the patient's body is injured, put three bearers on the injured side. Of the three, one is at the patient's shoulders, one at his hips, and one at his knees. The single bearer on the other side is opposite the hips. They kneel facing the patient, on the knee nearer his feet.

Lay the patient on his back, unless he is already in that position. The bearer at the shoulders passes one arm under the shoulder and the other under the neck to the other side, in order to support the head. The two bearers at the hips pass their arms under the patient's loins and thighs. The one at the knees puts both arms under the patient's legs. The patient is lifted gently to the knees of the three bearers in line. The single bearer on the other side now gets the stretcher and puts it against the ankles of the other three. The patient is gently lowered to it. The loaded stretcher is then lifted by one bearer at the front and one behind, and carried to the bed.

Much the same method is followed in lifting a patient from a bed to a stretcher, or from a stretcher to a bed. That is to say, the positions for the bearers are the same; but the patient, after he is lifted, is carried to the stretcher or bed, as the case may be, and gently lowered. Always, if possible, put the stretcher in line with the bed at its foot, and carry the patient over the foot of the bed. If it is necessary to put the stretcher at the side of the bed, the patient is lifted in the same way, but after this has been done the single bearer leaves the patient to the other three bearers. The single bearer, if the patient is being removed from the bed to a stretcher, as soon as the other bearers have stepped back a little, puts the stretcher under the patient, and all lower him gently to it. From stretcher to bed, the single bearer takes away the stretcher, so the other three may move forward a step or two to place the patient on the bed.



LIFTING PATIENT TO STRETCHER.

With two bearers to lift to a stretcher or bed from the floor or another stretcher, have one take a position at the thigh and the other at the shoulder, both on the same side of the patient. The bearers kneel on the knee nearest the patient's feet, as before. One bearer passes one arm under the hips and the other arm beneath the knees; the other passes one hand under the patient's shoulders to the further armpit, and the other beneath the small of the back. Both rise together and carry the patient to the stretcher or bed. The motions are the same in lifting from a bed, except that the bearers do not kneel. **Tell the bearers that they must work together, and that they are never to move till you direct them to do so.**

**Removing Clothing.**—The advantage of an extra bed or a table in the sick-room has been mentioned. If you have one of these, cover it with your old sheets, oilcloth or newspapers. If you have neither, use the bed covered in the same way. The first thing to be remembered in taking an injured person's clothes off is that he is of a good deal more importance than the clothes, and that they may be sacrificed. It is particularly difficult to remove the shoe from a badly injured foot, so that it is almost always necessary to cut the leather of the top freely. To remove the trousers from a severely injured limb, rip the outside seam. The seam may also be ripped from the sleeve. In taking off the coats and shirts from a broken arm, the uninjured arm should be drawn out first. In putting on the night clothing, however, put the injured arm in first. Burns are particularly difficult to handle. Use a sharp pair of scissors, and don't pull on the clothing which is stuck to the burn. If the clothing is stuck tight to the burn, do not try to get it off. Cut around the clothing which sticks tightly, and leave it after soaking it with olive oil. **Always remember the danger of shock and keep your patient covered.**

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